

EXHIBIT 1-ATTACHMENT C

**SIERRA CLUB COMMENTS ON
CONSENT DECREES, ATT. C:**

SECOND DECLARATION OF BRUCE BELL

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION

Sierra Club and Marilyn Wall,

Plaintiffs-Intervenors

v.

The Board of County Commissioners
Of Hamilton County, The City of Cincinnati,
And the Metropolitan Sewer District of Greater
Cincinnati

Defendants

Case No. 1-02- 107
Consol w/ C-1-02-135
Judge S. Arthur Spiegel
Magistrate Judge
Timothy S. Hogan

SECOND DECLARATION OF BRUCE A. BELL, Ph.D., P.E., DEE

I, Bruce A. Bell, state and declare as follows:

1. I am over 18 years of age and am competent to testify regarding the following:
2. I am president of Carpenter Environmental Associates, Inc. of Ramsey, New Jersey, an environmental engineering and science firm. I hold a Bachelor's degree in civil engineering, a Master's degree in environmental engineering, and a Ph.D. in environmental engineering, all from New York University. I am a registered professional engineer in New York and New Jersey. I am a diplomate of the American Academy of Environmental Engineers and serve on the committee that prepares the written and oral qualifying examinations for the Academy. I have over 32 years experience in the field of environmental engineering with expertise in wastewater collection and treatment. My experience includes the design and evaluation of collection systems, wastewater treatment plants and teaching of courses in environmental engineering at the

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undergraduate and graduate levels. My curriculum vita is attached as Appendix A.

3. I have approximately 30 years of experience providing litigation support in Clean Water Act enforcement actions. I have worked with USEPA and USDOJ as an expert witness since the early 1970s. I have participated in cases that have gone to trial where I provided expert witness testimony. The majority of cases in which I have been involved have settled. In those cases, I participated in settlement negotiations and assisted in preparing the technical portions of Consent Decrees. In addition, I have provided similar services to citizen plaintiffs in Clean Water Act citizen suits since approximately 1980.
4. The following statements and opinions are made with a reasonable degree of engineering certainty.
5. Unlike the Interim Partial Consent Decree (IPCD) at issue in this case, virtually all of the Consent Decrees in which I have participated, including those prepared by USEPA and USDOJ, have required, in addition to planning, construction of the identified remedial actions, and a deadline for construction of those remedies. In addition, all of those Consent Decrees have required the payment of civil penalties and have meaningful stipulated penalties for continued SSOs in violation of the Consent Decree and/or failure to meet required deadlines set forth in the Consent Decree. In my opinion, these provisions are crucial to motivating a polluter to bring itself into compliance with the Clean Water Act.
6. The IPCD fails to bring Defendants into compliance, or even require significant progress towards compliance with the Clean Water Act and Defendants' permits for a number of major reasons, including:
 - a. Failure to require a fixed final completion date for the specific construction projects required by the IPCD and identified in Attachment 3 of the IPCD.
 - b. Failure to require implementation of projects identified by Defendants' Capacity Assurance Project planning.
 - c. Inclusion of an inadequate operation and maintenance (O&M) program, coupled with an inability to collect stipulated penalties unless Plaintiffs

can prove that a SSO resulted from Defendants' failure to implement its O&M program.

- d. Replacement of removed I/I with raw sewage from new sewer connections, thus perpetuating illegal capacity related SSOs.
 - e. Failure to address in any meaningful way the over 2,500 backups of raw sewage into basements every year.
 - f. Implementation of a remedy at SSO 700 (Defendant's highest volume discharge SSO point) that does not comply with the secondary treatment requirements of the Clean Water Act. It is technically feasible to construct a remedy that would comply with the Act. Because of the arbitrary cost cap on the SSO 700 interim measure, the modification of the IPCD proposed by the United States to include disinfection will necessarily result in a smaller treatment facility than originally contemplated.
7. Attachment 3 to the IPCD lists 8 projects (now modified to 9 projects) scheduled to eliminate 16 of the 101 active, documented SSO locations over the next 5 years. The IPCD however does not require that these projects be completed on the scheduled date, if ever. The IPCD allows Defendants to modify any of these projects based upon modeling results along with the schedule for that project. Given time, an engineer can always design a better project. Without a real, enforceable deadline, there is no incentive for Defendants to actually complete these projects. Rather, the incentive exists to constantly modify each project to continually push the required completion date further into the future.
 8. The IPCD requires construction that will result in elimination of only 16 (or 17 if SSO 700 is included) out of the 101 reported capacity related SSOs in the next 16 to 22 years. The 101 numbered SSO locations that are reported to Ohio EPA do not represent the total number of SSOs in the system. There are thousands of occurrences of sewage backing up into basements each year and an additional number of SSOs, such as overflowing manholes, that occur at locations other than the numbered SSO locations reported to Ohio EPA by Defendants.
 9. The United States Memorandum in Support of Motion for Entry of Consent Decree (US Memorandum) claims that implementation of the CIP projects will

eliminate "all of defendants' "highly active" and (thus worst) SSOs". The proposed projects will not, in fact, eliminate all of Defendants' highly active SSOs. Three of the top ten most active (greatest number of discharges from January 1997 through November 2001) and five of the top 17 most active SSOs are not addressed at all in the Capital Improvement Projects contained in Attachment 3 to the IPCD.

10. The IPCD requires planning for the elimination of capacity related SSOs, but specifically states that construction or implementation of these plans is not required under the IPCD and that construction or implementation shall only be required pursuant to future negotiations and/or a subsequent enforcement action (IPCD, § VII.E.2).
11. Planning for elimination of capacity related SSOs without requiring actual implementation of those plans with a fixed completion date will not assure elimination of capacity related SSOs. In my experience, I have never seen a Consent Decree that requires planning without requiring subsequent implementation of those plans. Taking away the important motivating aspect of a fixed compliance deadline actually does more harm than good and appears to reward Defendants for their past delay in complying with the 1992 State of Ohio orders.
12. The O&M program required by the Consent Decree is inadequate to address non-capacity related SSOs, in that it requires less frequent cleaning of sewers and root removal from sewers than performed by the average utility, and significantly less frequent cleaning and root removal than required by EPA in recent actions.
13. A comparison of the O&M plan (Attachment 7 to the IPCD) to O&M frequencies from a benchmarking study performed for USEPA¹ clearly demonstrates the inadequacy of Defendants' O&M plan. The benchmarking study looked at 42 systems ranging in size from 32 to 5,700 miles of sewer and averaging 1,660 miles of sewer. The median SSO rate in the systems studied was 5.06 SSO per 100 miles of sewer per year, far less than Defendants' over 50 SSO per 100 miles

¹ Black and Veatch and the American Society of Civil Engineers, "Optimization of Collection System Maintenance Frequencies and System Performance," EPA Cooperative Agreement #CX824902-01-0, February 1999.

per year. The average utility in the study cleaned 30% of its system each year. The IPCD only requires Defendants to clean 6.3% of its system per year. Utilities in the study averaged root cutting in 4% of their systems each year. The IPCD only requires Defendants to cut roots (or use chemical treatment for roots) in 0.3% of its system each year.

14. O&M requirements contained in the IPCD are inconsistent with and far more lenient than recent EPA actions in other cities with which I am familiar. For example, in April 2002, EPA issued an Administrative Order to the City of San Diego whose sewer system is almost identical in size to Defendants'. San Diego's SSO rate is less than 20% of Defendants' SSO rate. The Administrative Order issued by EPA requires San Diego to clean approximately 1,500 miles of its sewer system each year for the next two years (50% of San Diego's system) while Defendants are required to clean only 185 miles of sewer each year (6.3% of its system). EPA's Administrative Order requires San Diego to rehabilitate or replace 60 miles of sewer each year for the next 10 years while Defendants are only required, under the IPCD, to rehabilitate or replace 10 miles of sewer each year despite a far worse SSO rate than experienced by San Diego. EPA's Administrative Order requires San Diego to maintain sufficient staff to administer an aggressive grease control program that includes permitting and inspection of food service establishments because grease is a major cause of blockages in sewers resulting in SSOs. The IPCD does not require Defendants to take any actions to prevent or reduce grease discharges to its system.

15. The inadequacy of the O&M requirements contained in the IPCD is further exacerbated by the fact that the IPCD does not really require that Defendants perform the specified actions each year. Compliance with the IPCD is measured by averaging three years performance. The IPCD further weakens the O&M requirements by requiring that in order to collect stipulated penalties for O&M related SSOs, Plaintiffs are required to prove that the SSO resulted from a failure of Defendants' O&M program. In my opinion, proving that a particular SSO occurred as the result of a particular O&M failure is nearly an impossible task.

16. It is clear that the Short-Term Adequate Capacity Plan (STACP) contained in the IPCD is not designed to eliminate active SSOs, but rather "The objective of the STACP Plan is to prevent any wastewater flows from new development from aggravating or in any way adding to the quantity discharged from any downstream SSO." (IPCD §VIII.C). In other words, the sole objective of the STACP Plan is to maintain the existing conditions.
17. The IPCD allows new sewer hookups tributary to active SSOs provided that, based upon criteria and formulae, a reduction of five gallons of flow is achieved for each gallon of flow added by new development. This approach will unnecessarily extend the time that capacity related SSOs are active by continuing to allow additional flows to overloaded sewers without first determining the maximum carrying capacity of the sewer.
18. The IPCD perpetuates existing unpermitted capacity related SSOs by allowing one gallon of additional raw sewage to be added to the collection system for each five gallons of rainwater removed prior to providing adequate sewer capacity to carry that sewage to a wastewater treatment plant. In addition, the ongoing SSOs will contain higher pollutant concentrations because each five gallons of storm water removed will be replaced by one gallon of raw sewage, which contains higher concentrations of disease causing microorganisms as well as other pollutants.
19. The STACP fails to even ensure that the predicted flow reductions assumed from I/I removal actions are verified to be real. The IPCD allows Defendants to request higher credits if verification supports such increases but provides no requirement to inform Plaintiffs if actual flow reductions are less than the assumed credits. Defendants have no requirement or motivation to reduce the assumed credits to reflect real flow reductions, thus the IPCD will serve to perpetuate illegal SSOs.
20. Sewer moratoria are commonly used to prevent additional raw sewage from entering the sewer system before adequate conveyance and treatment facilities are in-place. Sewer moratoria not only prevent capacity related SSOs and capacity related effluent violations at treatment facilities, they also provide a strong

incentive for the utility to address capacity issues in a timely fashion. The IPCD does not impose a sewer moratorium, but rather allows additional sewer hookups as a reward for removing I/I, which Defendants' should already be aggressively removing in an attempt to reduce or eliminate capacity related SSOs.

21. People served by Defendants' sewer system experience thousands of backups of raw sewage into their basements each year not related to problems with homeowners' sewer laterals. Raw sewage inside of homes presents a health risk to all who may come into contact with the raw sewage. In addition, cleanup of raw sewage inside of homes represents a serious economic burden
22. Backups of raw sewage into basements are caused both by insufficient capacity in Defendants' sewers and by blockages in Defendants' sewers that are O&M related. The IPCD does little to remedy these conditions.
23. The IPCD requires installation of a Chemically Enhanced High Rate Settling (CEHRS) and storage facility as an interim measure at SSO 700. SSO 700 is a highly active SSO that frequently discharges raw sewage in large volumes. The modification to the IPCD requires the addition of disinfection at the CEHRS facility.
24. In my first Declaration, I discussed the inability of such CEHRS systems to meet the secondary treatment requirements required by the Clean Water Act and its implementing regulations. In addition, in my first Declaration, I opined that a secondary treatment system to treat the discharge from SSO 700 is both technically feasible and can be constructed within five years.
25. Notwithstanding the fact that the CEHRS is not permittable under the federal CWA, the modifications to the IPCD have effectively reduced the size of any facility that would be built under the IPCD at SSO 700. Modifications to the IPCD have added a requirement to provide disinfection at the CEHRS facility. The modifications, however, left in place the \$10,000,000 floor and \$15,000,000 cap on construction costs for the facility contained in the original IPCD. Because significant monies must be spent to provide disinfection, the entire facility will be smaller, and would, therefore, store and partially treat less raw sewage than contemplated under the original IPCD.

26. Mr. Klingenstein, in his Declaration², correctly attributes capacity related SSOs to the failure of Defendants' to provide adequate conveyance capacity in its sewers and/or to prevent excessive I/I into its sewers. He also correctly attributes non-capacity related SSOs to blockages caused by insufficient O&M. In my opinion, the IPCD fails to require that Defendants actually construct adequate sewer capacity and fails to require the level of O&M required to eliminate or minimize non-capacity SSOs.
27. Mr. Klingenstein, in his Declaration, indicates that the projects to eliminate (or reduce the frequency of) 16 SSOs required by the IPCD were originally required by a draft Ohio Director's Final Findings and Orders (DFFO) prior to USEPA entering into negotiations with Defendants. He fails to mention that the Ohio EPA Director's Final Findings and Orders was issued as final in 1992 and that 10 years later these projects have not been built as required by the DFFO.
28. Mr. Klingenstein also testifies in his Declaration that Defendants understand that these projects must be of adequate size to prevent SSOs for a 10-year, 24-hour rain event. Mr. Klingenstein failed to include in his Declaration the fact that the IPCD contains no such requirement.
29. Mr. Klingenstein, in his Declaration, admits that the CEHRS and Storage Facility required by the IPCD will only, according to Defendants, reduce current discharges of raw sewage at SSO 700 by 75%. Mr. Klingenstein relies on Defendants' estimates for even this partial reduction of raw sewage discharge. Apparently, EPA has done no estimates of its own. The IPCD fails to mandate even the partial treatment allowed by CEHRS for all of the raw sewage currently being discharged at SSO 700. It is not clear whether Defendant's estimates of the fraction of raw sewage that can be partially treated at the facility is accurate, considering that the facility must now be smaller to spend the same amount of money and include disinfection.
30. Mr. Klingenstein testifies that Defendants "prefer" to use a tunnel, funded in major part by the Corps of Engineers, to eliminate SSO 700 in about 15 years.

² Declaration of Mark J. Klingenstein, P.E. in Support of Motion by the United States for Entry of the Interim Partial Consent Decree, August 13, 2002.

There is no guarantee, however, that the tunnel will be funded by the Corps or by Hamilton County or that it will ever be built. Making a significant part of the schedule to achieve compliance with the Act contingent upon such a speculative venture as the Mill Creek Deep Tunnel further leads me to the conclusion that the IPCD does not provide a reasonable basis to achieve compliance with the Act.

31. Mr. Klingenstein speculates that there may not be room for a secondary treatment plant, as I suggested, on the site; that there may be opposition to a secondary treatment plant; that more stringent effluent limits than secondary treatment may be required if a permit is required from Ohio EPA; and that the five year time to complete I estimated for a secondary treatment plant is "unlikely" due to Defendants' contracting procedures and other hurdles. Mr. Klingenstein has not analyzed any of these issues, but merely speculates.
32. Mr. Klingenstein expresses concern (with no technical analysis) that high peak flows may be an issue in the design and operation of the plant. High peaking factors due to wet weather flows can be addressed in the design of a secondary treatment plant through storage flow equalization, process design, and selective chemical addition.
33. Mr. Elmaraghy, in his Affidavit³, concludes that more stringent than secondary treatment at SSO 700 would likely be required to allow a discharge permit under Ohio's rules and regulations. Mr. Elmaraghy admits that treatment more stringent than secondary treatment is likely needed at SSO 700, yet supports the CEHRS treatment for SSO 700 that would provide less than secondary treatment, apparently with no permit and no monitoring
34. Mr. Elmaraghy questions whether a biological treatment facility could operate under the variable flow conditions at SSO 700. His concerns, lack of food for the biomass during non-overflow conditions and high peak flows washing out biomass can be easily addressed during process selection and design. The biomass can easily be maintained by routing a portion of the flow in the sewer to the secondary plant at all times. As discussed previously, process design, storage,

³ Affidavit of George Elmaraghy, August 13, 2002.

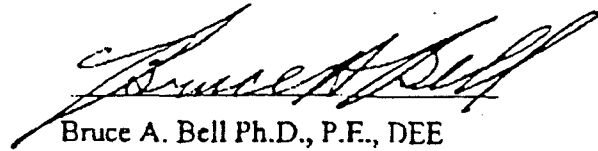
flow equalization, and selective chemical addition can be used to deal with peak flows.

35. Mr. Simpson, in his Affidavit⁴, opines that the STACP, by requiring five gallons of I/I be removed from the system before one gallon of raw sewage can be added is more protective of the environment than a sewer moratorium alone. This is because the IPCD fails to require Defendants to carry out infiltration/inflow (I/I) removal in order to reduce or eliminate illegal SSOs. A moratorium combined with a requirement that Defendants take all available actions to reduce or eliminate illegal SSOs, would result in significantly less pollutants being discharged to the environment than does the IPCD. In my experience, this is one of the most highly motivating actions that can be taken to quickly bring a municipal violator into compliance with the Clean Water Act.
36. The IPCD fails to require actual construction of needed remedies, fails to address thousands of discharges of raw sewage into basements, and allows a remedy for the worst of Defendants' SSOs (SSO 700) that will continue to result in the discharge of raw sewage from that SSO and that could not be permitted under USEPA and Ohio EPA regulations. The IPCD also allows new sewage flows to be connected to Defendants' system, which obviously cannot handle the flows that it already is receiving without illegal SSOs.
37. The changes to the IPCD made after the United States received the Sierra Club and citizen comments are, in the words of the United States, "minor modifications." From an engineering standpoint, I agree with this statement. The changes made to the IPCD are of minor engineering significance in the overall context of Defendants violations and do not change my opinions in any way that this decree is inadequate to bring Defendants into compliance with the law.

⁴ Affidavit of James Simpson, August 13, 2002.

I swear under the penalty of perjury that the foregoing is true and to the best of my knowledge and belief.

Executed on this day the 9th of September 2002.



Bruce A. Bell Ph.D., P.F., DEE